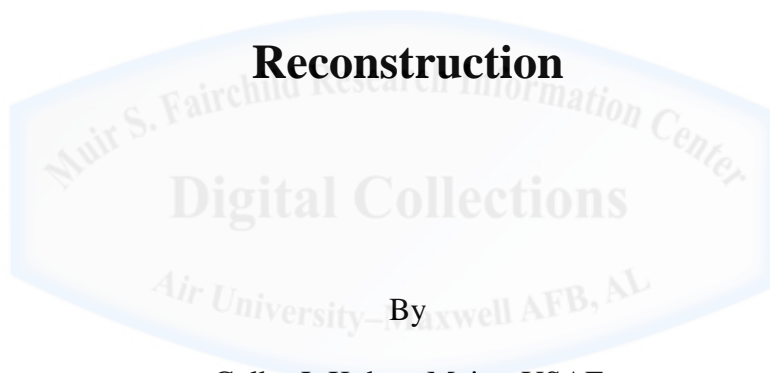


AIR COMMAND AND STAFF COLLEGE

AIR UNIVERSITY

# **The Utility of Airborne ISR Assets for Stability and Reconstruction**



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A Research Report Submitted to the Faculty

In Partial Fulfillment of the Graduation Requirements

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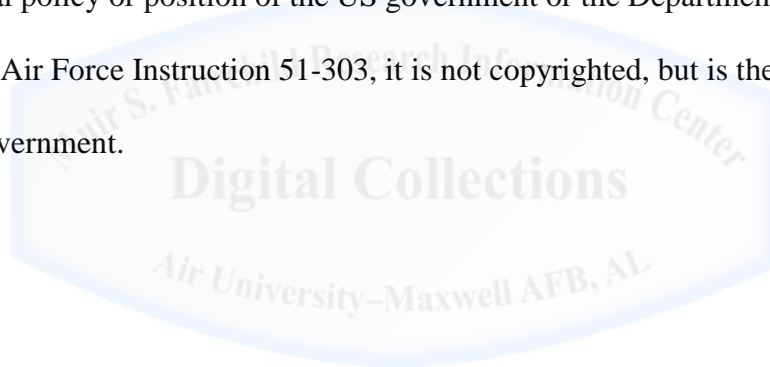
Maxwell Air Force Base, Alabama

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## ABSTRACT

Airborne Intelligence, Surveillance, and Reconnaissance (ISR) capabilities are underutilized by stability and reconstruction elements due to a lack of understanding by both the military and civilian entities over priority, utility, and availability. Over-arching guidance for military support of stability operations is vague at best and trending towards decreased military involvement. In turn, the lack of availability has conditioned those conducting stability operations to neglect planning for or requesting traditional military ISR collection capabilities such as airborne ISR assets. These factors are preventing the sustained union of stability operations needs and the capabilities that airborne ISR could contribute. While short term fixes do exist, real change in priority and understanding will need to occur in order to ensure the full weight and unity of effort is applied to stability operations in Afghanistan. The increase in respective awareness by both military and civilian entities will greatly enhance the safety and effectiveness of stability and reconstruction operations within Afghanistan and set the standard for future stability, security, transition and reconstruction (SSTR) challenges around the world.

*“War is an art and as such is not susceptible of explanation by fixed formula.”*

- General George S. Patton Jr.

## **I. INTRODUCTION**

Imagine, if you will, a beautiful day in Afghanistan. Provisional reconstruction team (PRT) X prepares to go out on a multi-purpose mission that will help to increase stabilization of their assigned region. Before leaving the compound, they establish the safest route based on MSI imagery from a U-2 Dragon Lady, then check in with the MQ-1 Predator assigned to provide overwatch for their journey. They are planning to provide support to a farmer who has planted legal crops and then encourage a region that planted poppies to consider changing; all determined from recent U-2 wide area imagery provided to them. Travel into a more hostile area was forgone because a RQ-4 Global Hawk was able to provide imagery of progress at an austere construction site that matched the Afghani contractor's update. On their way back they take note of the highway and utility construction that they funded based on pattern of life surveillance; possibly from the same MQ-1 that is watching them now. Unfortunately, the ground truth is PRTs have a difficult time getting any one of these products at any given time, let alone all in a preplanned sequence that would provide these kinds of results.

Airborne ISR alone is NOT the solution to making Afghanistan or any other failing entity into a stable state with a viable government. Its limited availability for and use by PRTs in Afghanistan cannot be proven to have single-handedly elongated the war. What airborne ISR is is a tool that has shown its worth for almost 150 years in providing support to kinetic and non-kinetic operations alike. Limiting or denying the use of airborne ISR assets from stability operations because they do not seemingly fit into the traditional “formula” of military ISR collection management in Afghanistan stifles creative solutions. Dismissal or disinterest by

stability entities of a broad range of capabilities because they do not fit the formula of grass-roots intelligence efforts, again, stifles creative solutions. This paper does not stand to be the catalyst for victory in Afghanistan, but it may serve as a cautionary tale of the forces that can limit solution sets of stability not only in this war, but also in future whole of government stability efforts. It may also add an arrow in the quiver of PRTs to improve the process of creating a stable situation in Afghanistan and elsewhere.

### ***The Utility of Airborne ISR from Past Campaigns***

Airborne ISR has played an important role in U.S. military operations even before the Wright brothers flew their first sortie. On September 24<sup>th</sup>, 1861, the Union Army launched a balloon by the Potomac River that allowed Union guns to “fire accurately at the Confederate troops without actually being able to see them.”<sup>1</sup> Balloons made several surveillance flights during the Spanish-American war, including one for the intelligence preparation of the charge up San Juan Hill.<sup>2</sup> U.S. Fixed wing ISR got its operational start in 1916 by supporting General Pershing’s expedition to punish Pancho Villa, and then stepped onto the big stage in 1918 with operations in WWI.<sup>3</sup>

From WWII through the end of the cold war, airborne ISR has seen an exponential growth in capabilities for the aircraft, sensors, and the transmission capabilities. The initial purpose was to take camera footage of areas for battle preparation and planning, battle damage assessment (BDA), and to detect or confirm enemy capabilities. During the early years of the cold war, aircraft like the U-2 were used to fly high over the Soviet Union to detect and count military capabilities. Before the age of satellites, these images from airborne over-flights were the only way to count how many long range bombers or nuclear capable missiles the Soviets were building or had ready for deployment. It was this kind of imagery that provided warning

and proof that the Soviets had deployed nuclear capable missiles on the Island of Cuba. It was also this imagery that allowed the US Ambassador to the United Nations, Adlai Stevenson, to back up the US accusations with proof and catch the Soviet ambassador in a lie in front of the United Nations (UN).

The Vietnam War saw the use of not only the U-2 but even more sophisticated imaging platforms like the SR-71, RF-4, and one of the first jet RPAs, the Ryan Firebee. Their primary tasks were to take imagery of the North which was later used for order-of-battle information as well as BDA and planning purposes. Simultaneous and subsequent flights of SR-71s were also being used to supplement satellite imagery of the Soviet Union. The flexibility and responsiveness of airborne SR-71 sorties allowed the US a better understanding of actions within the extremely secretive Soviet Union and other Warsaw Pact countries.

Even with the ever-increasing capabilities of space based ISR systems, airborne ISR continued to be crucial in subsequent conflicts. Places like Iraq and Bosnia highlighted the limits of satellite imagery. Most orbital satellites had been placed to keep watch of perceived threats like the Soviet Union, China, or North Korea, so when Saddam Hussein invaded Kuwait, satellites were not immediately available and had to be reprogrammed. Even after they were placed in the proper orbit, the time and periodicity over target was limited and difficult to change. In contrast, airborne ISR assets could be launched quickly and timed to be present during an expected threat while loitering for any delays or to track the threat. As Admiral Richard Macke noted in testimony to Congress:

From the operator's perspective, what I need is something that will not give me just a spot in time but will give me a track of what is happening. When we are trying to find out if the Serbs are taking arms, moving tanks or artillery into Bosnia, we can get a picture of them stacked up on the Serbian side of the bridge. We do not know whether they then went on to move across that bridge. We need the [data] that a tactical, an SR-71, a U-2, or



an unmanned vehicle of some sort, will give us, in addition to, not in replacement of, the ability of the satellites to go around and check not only that spot but a lot of other spots around the world for us. It is the integration of strategic and tactical.<sup>4</sup>

As important as airborne ISR has been for military operations, it has also been critical for peacetime civilian aide and treaty support. General Robert Otto, director of ISR capabilities at Headquarter Air Force pointed out that the U.S. government relies on airborne ISR to “verify the terms of the 1979 Camp David Peace Accord among Egypt, Israel and Syria. Each month, U-2s fly over the region and provide the signatories with hard duplicates of [Optical Bar Camera] film to verify the location of one another’s troops.”<sup>5</sup> Not only are the images important for the treaty, but the US government’s commitment to provide highly capable ISR platforms for this purpose is seen by all signatories as a level of commitment that impels reassurance and compliance.

U.S. military airborne ISR assets have also played an important role in natural disasters at home and around the world. Hurricane Katrina saw the use of broad area synoptic imagery from the U-2 to survey large portions of the city, multiple electro-optical and infrared images sent in near real-time from a Global Hawk, and near real-time full motion video displays from Predator aircraft. The earthquake in Haiti saw a similar line-up that provided the military and non-governmental organizations with up to date information on what was happening, what was needed, and the best ways to get those needs to the best locations the quickest. These airborne capabilities were also used to help firefighters and emergency personnel during the forest fires in California. As California Fire Captain Mike Wilson described it, “Images collected by the Global Hawk are transmitted to Langley, Va., and interpreted by Air Force analysts before being sent to Southern California fire incident commanders, who use the data to determine evacuation areas, road closures and the deployment of firefighters and equipment.”<sup>6</sup>

These are all samplings of ISR uses and are in no-way all-inclusive. Nor have the new uses for airborne ISR been exhausted. As Major Tim Johnson of the Combined Air and Space Operations Center pointed out, “with respect to combat operations, the ISR mission provides a level of planning, analysis and targeting support never seen before in the history of warfare.”<sup>7</sup> This has yet to be fully proven for SSTR operations, but history has shown that when the priority of a mission allows access to the capabilities of airborne ISR assets, the benefits can be significant.

### ***Overview of Problem and Thesis***

Whether warranted or not, there is a perception among military and non-military members of non-kinetic missions in Afghanistan that airborne ISR capabilities are unavailable to them. ISR has played critical roles in non-military events like humanitarian relief and peace accord verifications in the past, but control and tasking has never strayed far or long from traditional military purposes. This may explain the perception of low priority that non-kinetic missions such as provisional reconstruction team (PRT) requests receive in an already swamped ISR allocation system. The United States Institute of Peace describes this as “inadequate links between priorities.”<sup>8</sup> To remedy this, Department of Defense Directive (DoDD) 3000.05 was produced in 2005 to elevate SSTR priorities, stating that stability operations “shall be given priority comparable to combat operations.”<sup>9</sup> However, a 2008 Congressional report noted, “despite the National Security President Directive 44 and the DoDD 3000.05, the United States Government lacks a comprehensive and coherent interagency strategy to respond to stabilization and reconstruction operations.”<sup>10</sup> Comments attributed to then Defense Secretary Donald Rumsfeld saying “we’re not gonna secure your PRTs!”<sup>11</sup> to the Secretary of State may have led to a prevalent attitude within DoD that PRTs do not warrant the same level of priorities that

kinetic missions warrant. This has caused PRT ISR requests to continue to be ignored or trumped by military ISR requests, which is reflected in comments by a recent commander of PRT Zabul, who said “getting ISR here, even to support a major operation is a tough to do.”<sup>12</sup>

There is also a prevailing lack of knowledge by PRT members as to what airborne ISR can provide and how it could be of use for SSTR missions. This may spring from an ingrained sense that airborne imagery is seldom available for SSTR operations or it may be a byproduct of minimal inter-agency participation. As Major General Flynn mentions in his article *Fixing Intel: A Blueprint for Making Intelligence Relevant in Afghanistan*, “Too often, battalion S-2s are in the dark about the full spectrum of collection platforms that can be tasked on their behalf by the brigade.”<sup>13</sup> Many of the PRTs work their intelligence requests through these same S-2s. General Flynn goes on to note that, “too often they are frustrated to learn that these capabilities are devoted primarily to serving brigade staff rather than battalions in the field.”<sup>14</sup> Even more disconnected are those PRTs that don’t have access to S-2s, like the Lithuanian run PRT in Ghowr. As a Finish report points out, “In the absence of other forces nearby, the PRT is solely responsible for covering its province in terms of the show of presence, intelligence collection and if needed, use of force.”<sup>15</sup> If our own military intelligence representation to PRTs has limited knowledge of the airborne assets available, it is doubtful these isolated PRTs fair any better.

The lack of awareness may also stem from a lack of effort to bridge the gap between SSTR and military ISR. *The Guiding Principles for Stabilization and Reconstruction* alludes to this by stating, “intelligence is not a formal or acknowledged part of S&R missions. Doctrinal guidance and cooperation on this function is sorely needed to ensure that critical information is collected and appropriately shared.”<sup>16</sup> Whatever the reason, the limited understanding of what

airborne ISR can provide to a broader solution in Afghanistan and other failing states is a waste of opportunities that our nation can ill afford.

Whether it is because of the provider, the potential user, or both, a broad range of capabilities are being left out of the search for a solution to the current situation in Afghanistan. Some of these capabilities already match up with PRT needs, but their usage for stability operations seem to be sporadic at best. There are both short and long term fixes to the divide, but both sides of the divide will need to change before a whole of government approach with airborne ISR is realized.

## **II. CURRENT MILITARY SSTR GUIDANCE**

Throughout US history, the relationship between the Department of Defense and the Department of State, and even more so non-government organizations (NGO), has been minimal to non-existent at best, adversarial at worst. But the military still understood the utility of airborne intelligence for military operations other than war (MOOTW). JP 3-07, dated June 1995, stated “Manned and unmanned aerial intelligence sensors, to include space-based, can provide valuable information where other intelligence infrastructure is not in place...Sensors on space and aerial platforms can also monitor terrestrial force movement and assist in treaty verification.”<sup>17</sup> Even with this understanding of its utility, the willingness and/or ability to provide these capabilities for operations seen as outside those directed to the military or not within the scope of the military were limited at best.

During the first few years of OEF and OIF, it became evident to the Presidential administration that this lack of coordination and cooperation was not only inefficient, but was detrimental to meeting the national strategic objectives of these conflicts. With this in mind,

President Bush issued the National Security Presidential Directive (NSPD) 44 in December

2005. The push for coordination is clearly spelled out:

Need for Coordinated U.S. Efforts. To achieve maximum effect, a focal point is needed (i) to coordinate and strengthen efforts of the United States Government to prepare, plan for, and conduct reconstruction and stabilization assistance and related activities in a range of situations that require the response capabilities of multiple United States Government entities and (ii) to harmonize such efforts with U.S. military plans and operations. The relevant situations include complex emergencies and transitions, failing states, failed states, and environments across the spectrum of conflict, particularly those involving transitions from peacekeeping and other military interventions. The response to these crises will include among others, activities relating to internal security, governance and participation, social and economic well-being, and justice and reconciliation.<sup>18</sup>

NSPD 44 goes on to state the directive to “coordinate United States Government responses for reconstruction and stabilization with the Secretary of Defense to ensure harmonization with any planned or ongoing U.S. military operations, including peacekeeping missions, at the planning and implementation phases.”<sup>19</sup>

Concurrent with NSPD 44 spelling out the need for coordination, DoD was also working on giving the same broad range of SSTR missions a priority comparable to military operations. In November 2005, the Undersecretary of Defense for Policy (USD(P)) released DoDD 3000.05. It set the DoD policy that “Stability operations are a core U.S. military mission that the Department of Defense shall be prepared to conduct and support.” In case this statement wasn’t quantifiable enough, the next sentence stated “They shall be given priority comparable to combat operations.”<sup>20</sup> In principle, this gave the equal priority of military kinetic ops to what DoDD 3000.05 defined as the purpose of stability operations:

Stability operations are conducted to help establish order that advances U.S. interests and values. The immediate goal often is to provide the local populace with security, restore essential services, and meet humanitarian needs. The long-term goal is to help develop indigenous capacity for securing essential services, a viable market economy, rule of law, democratic institutions, and a robust civil society.<sup>21</sup>

With that paragraph, DoDD 3000.05 gave a wide, if not all-inclusive, list of activities that should be given comparable priority to combat operations. The directive drove home its importance with the statement “Integrated civilian and military efforts are key to successful stability operations.”<sup>22</sup>

The priority and importance that DoDD 3000.05 gave to stability operations were short lived. In 2009, Department of Defense Instruction (DoDI) 3000.05 superseded the DoDD and most notably removed any reference to “comparable” priority. In its place, the new instruction tasks the Assistant Secretary of Defense for Special Operations and Low-Intensity Conflict and Interdependent Capabilities (ASD(SO/LIC&IC)) to “assist the Combatant Commanders in identifying and prioritizing their requirements for stability operations to support campaign plans.”<sup>23</sup> This seems to be the only relevant reference to any form of prioritization of support to stability operations. DoDI 3000.05 also removed many of the specific intelligence support directives in DoDD 3000.05, including that of USD(I) to “Ensure the availability of suitable intelligence and counterintelligence resources for stability operations.”<sup>24</sup> In their place were broader, more vague directives like that of the Director, Defense Intelligence Agency (DIA), who shall “manage intelligence planning for adaptive planning activities supporting stability operations.”<sup>25</sup>

Also of note in the change from the DoDD to the DoDI are the changes in definitions. The given definition of stability operations changed from “military and civilian activities”<sup>26</sup> to “military missions, tasks, and activities...in coordination with other instruments of national power.”<sup>27</sup> The list of supported stability tasks also changed to “rebuilding basic infrastructure; developing local governance structures; fostering security, economic stability, and development; and building indigenous capacity for such tasks.”<sup>28</sup> Gone are any references to a viable market

economy, rule of law, democratic institutions, or a robust civil society. There are also separate references to tasks that are supported and tasks that can be conducted. It lists the establishment of civil security and civil control, restoration of essential services, repairing of critical infrastructure and providing humanitarian assistance as tasks that the DoD shall have the capability to conduct. It fails, however, to give any firm delineation between conducting and supporting.

Guidance at the service level is limited to references in field manuals (FM) and Air Force doctrine documents (AFDD). The Army's FM 3-07 on stability operations makes no reference to airborne ISR, but its section on intelligence is still more than the Air Force provides because the Air Force has neglected to create an AFDD or any specific guidance on the topic of stability operations. Indirectly, because of the delegation of priority, the most significant Air Force guidance to the use of airborne ISR for stability operations comes from AFDD 2-9, *Intelligence, Surveillance, and Reconnaissance Operations*. It describes the requirement validation process as such:

Theater collection managers will typically answer the following questions before validating an information requirement: Does the information requirement meet the commander's concept of operations? Has the information already been acquired but not distributed to the requester? Are there other ongoing operations that might satisfy the requirement? If any of these conditions is met, new ISR collection missions may not be necessary. Once validated, an information requirement becomes a collection requirement and the ISR planning process begins.<sup>29</sup>

With the delegation of priority and validation down to the COCOM and below by DoDI 3000.05, this guidance takes on new importance for determining whether SSTR operations warrant airborne ISR support.



### III. PRT NEEDS

The best examples of stability operations and their needs in today's fight come from Afghanistan PRTs. These needs may be identified through years of routine use or they may spring from the mind of creative team members, but either way they should be considered alongside all potential solutions, including airborne ISR. The following PRT needs are in no way all-inclusive and by no means solvable solely by airborne ISR capabilities, but they do provide scenarios where these capabilities could add significant benefit to the accomplishment of the mission. Major General Flynn noted the need for airborne ISR to expand in order to answer questions that are potentially more relevant to ending the war than those currently subscribed to:

Officers in the field believe that the emphasis on force protection missions by spy planes and other non-HUMINT platforms should be balanced with collection and analysis of population-centric information. Is that desert road we're thinking of paving really the most heavily trafficked route? Which mosques and bazaars attract the most people from week to week? Is that local contractor actually implementing the irrigation project we paid him to put into service? These are the kinds of questions, beyond those concerning the enemy as such, which military and civilian decision-makers in the field need help answering.<sup>30</sup>

The failure to consider airborne ISR in the solution-set for these problems, whether because of willingness to provide or knowledge to ask, limits the ability for those planning and those executing to create the best, most efficient outcome.

#### ***Construction Verification Imagery***

From interviews with past and present PRT members, the need for periodic construction contract verification presented itself as having excellent potential for a marriage between an airborne ISR capability and a PRT need. Past efforts by PRTs to fund construction projects at insecure locations had to rely on the Afghani contractor's word as to progress made. As the crackdown on corruption began to increase, PRTs were finding that some projects they were told had advanced were actually well behind, or in some cases not even started. As Lt Col Halcomb,



former PRT Paktya commander put it, “in several cases we had been advised by contracted Afghan engineers that construction was going well and near completion, with large sums of money paid out, when in fact nothing was there or only a slab of mud/concrete.”<sup>31</sup> To confirm this, PRTs had to physically drive to the sight and risk improvised explosive devices (IED) and insurgent attacks in order to get eyes on the construction site. This mission lends itself perfectly to airborne imagery that could give periodic updates to progress and level of effort without risking ground transportation. Literal EO imagery would fit this mission well because of the EO sensor’s frequency in the AOR and because it could be taken from an aircraft that did not have to be directly over the target. The imagery could be sent within minutes to the PRT for verification. This could not replace site visits because overall work quality and internal details could not be derived from the airborne imagery, but it could cut down on the periodicity of site visits, thereby lowering the risk of exposure.

### ***Poppy Cultivation***

Agricultural efforts, especially those centered around poppy eradication and the promotion of alternative crops, could also be supported by airborne imagery. In a province such as Helmand that is 23,000 square miles, airborne imagery is not only useful, it is essential for the location of poppy cultivation.<sup>32</sup> Airborne imagery can be used to find new poppy crops or used to verify that a farmer who was provided funding for alternative crops has actually switched away from poppies. Airborne imagery can also identify intercropping, or the concealment of illicit crops between or behind legal crops. Ground search and verification of poppy cultivation within a mid to large sized province would require far more than the 100 personnel that a large PRT like Helmand possesses, and the necessity to travel to accomplish this mission would increase the risk significantly. The effects of an effort against illicit drug production can be

critical to several aspects of stabilization within Afghanistan. As Dennis Blair noted in his testimony to Congress, “The insidious effects of drug-related criminality continue to undercut the government’s ability to assert its authority outside of Kabul, to develop a strong, rule-of-law based system, and to rebuild the economy.”<sup>33</sup>

***Mineral Deposits, Ground Water, Geothermal Activity, etc.***

Other desired uses for airborne imagery include detection of mineral deposits, ground water, geothermal activity, and fault lines. According to American government officials, large mineral deposits like those announced by the Pentagon in 2010 have the potential to “fundamentally alter the Afghan economy and perhaps the Afghan war itself.”<sup>34</sup> Aside from the mineral deposits, Lt Col Velasquez, PRT Kapisa commander, noted the requirement for imagery that would help “determine the type of construction, potential places for private enterprise in coordination with USAID programs, and ongoing projects like rural electrification.”<sup>35</sup> Information that can bring industry to materials, utilities to villages, and connect villages to each other can make a large difference in the pace of economic progress towards viability. Some of these requests are currently being met by satellite imagery, but improved resolution and lower costs could be achieved through airborne ISR assets if the mission was tasked correctly.

***Protection***

Security for PRT movement is also a capability sought after from airborne ISR assets. Even if the use of other airborne imagery fulfills the promise of reducing the need for extraneous travel, PRTs will continue to require safe and consistent site visits if they are to be truly effective. Just as FMV imagery is useful for military convoys, it is also useful for PRT movement to detect threats or roadblocks along the route. Lt Col Kirk Karver, deputy director of the ISR division at the CAOC in Southwest Asia, described how FMV off Predator RPAs are

being utilized currently to support SSTR operations; “Through its pre-route surveillance and convoy over-watch, ISR assets are able to provide exceptional security for humanitarian missions such as UN World Food Program convoys and provincial reconstruction team efforts to develop fundamental essential services.”<sup>36</sup> Airborne imagery detection of potential IED, mine placement or any other potential threat along the route is critical information that could save PRT lives, just as it currently saves military lives. A byproduct of this ISR support is the freedom of movement it can encourage, allowing the free flow of people and goods. The US Institute for Peace points out “enabling freedom of movement has wide-reaching benefits, promoting economic growth and social normalization among communities.”<sup>37</sup>

The need for SSTR protection is not limited to PRT travel or the roads on which they travel. As Lt Col Karver notes, “ISR operations also support elections to include voter registration and providing election-day security through armed reconnaissance and over-watch.”<sup>38</sup> The *Guiding Principles for Stabilization and Reconstruction* lists “political figures, judges, prosecutors, defense counsels, or any individual who is willing to take risks for peace or has a role in ending impunity or implementing unwanted reforms” as those who need protections that could at least in part be provided by airborne ISR capabilities. “Establishing close protection programs for these individuals may be necessary to ensure their safety, including special convoy arrangements for travel, bodyguards, and other security measures.”<sup>39</sup>

Beyond the protection of people, Lt Col Karver also notes that current airborne ISR assets are providing “security for national assets such as dams, power lines, and ‘watching and protecting’ major cities.”<sup>40</sup> Border security, or the “movement of people and goods across state borders (including air and seaports) to ensure that these elements do not destabilize the country” is also listed within *Guiding Principles for Stabilization and Reconstruction*, with “Physical

border security, which involves monitoring interstate border areas for crime, refugee flows and the movement of irregular forces” as a potential match for airborne ISR capabilities.<sup>41</sup>

#### **IV. AVAILABLE AIRBORNE CAPABILITIES**

While there are numerous sensors and capabilities under the ISR umbrella, for the purpose of this research study the scope was limited to airborne electro optical (EO), infra-red (IR), multi-spectral imagery (MSI), broad area synoptic coverage, and full motion video (FMV). These imagery capabilities are readily available and currently in heavy operations over Afghanistan, and most of their capabilities are easily attainable for unclassified specifications. These products are also literal, reducing the need for processing or analysis before being provided to the PRT. These capabilities may be hosted on different aircraft in different flight regimes, but their overall utility to SSTR operations in Afghanistan would change very little with respect to their desired utility.

##### ***Broad Area Synoptic Imagery***

The oldest capability in the airborne ISR set is the broad area synoptic coverage provided by the optical bar camera (OBC) on the U-2. The OBC can provide up to an eight on the National Imagery Interpretability Rating Scale (NIIRS). This NIIRS rating would allow you to identify a USGS benchmark set in a paved surface, identify license plates on a passenger/truck type vehicle, detect narcotics intercropping, etc.<sup>42</sup> In a single mission, the OBC can get up to 140 thousand squared nautical miles (NM).<sup>43</sup> Figure 1 is imagery from Hurricane Katrina support and represents one 70 nautical mile frame and a level of detail that can be taken from that image.



Figure 1. OBC Imagery<sup>44</sup>

A limitation of this capability is the aircraft has to fly over the intended target, requiring a permissive aerial environment. Another limitation is that it is not timely like digital products. The film has to be flown somewhere and then processed before the images can be analyzed and digitized, taking anywhere from five days to three weeks. But once digitized, it can be made available to all users because it is an unclassified product. This is especially convenient when sharing information with foreign and NGO entities.

### ***Full Motion Video***

A more timely source of imagery, and one that is in high demand throughout Afghanistan is full motion video (FMV). FMV sensors are becoming more common on various platforms, but they tend to be most associated with Predator and Reaper remotely piloted aircraft (RPA). FMV imagery provides a near real-time video of the target that can be instantly downloaded to a properly equipped laptop within broadcast range. The downside of this capability for SSTR operations is mainly its demand for other operations. The fact that most FMV equipped platforms are also armed means these are in high demand for combat and counter-insurgency operations. And being armed can create a stigma that an SSTR operation

may not want attached to their mission. A variant of FMV comes from a sensor called Gorgon Stare. It is scheduled to be operational soon and promises to bring the capability of watching an area with a four kilometer radius while simultaneously being able to zoom in and track twelve different targets within that area. Each target can be received by a different user within direct link of the aircraft. This means a PRT with the right equipment could view an image off of another unit's mission as long as it was within the aircraft's footprint.



Figure 2: FMV Imagery<sup>45</sup>

### ***Electro-Optical/Infrared/Multi-Spectral Imagery***

The most relevant capability to the current SSTR effort in Afghanistan may well be EO imagery. EO imagery can produce a literal, IR or MSI image and transmit it globally within minutes. The targets can be anywhere from directly under the aircraft to as far away as 120 NM, depending on the platform and sensor. The easiest to interpret is a literal EO image that looks comparable to a digital photo. An IR image uses heat signatures to define features and can be useful in determining human and animal presence, especially in low light environments. MSI uses multiple simultaneous images of a scene with light from different parts of the spectrum to discern possible human and livestock activity, vehicle tracks and movement, material differences, construction and earth moving, etc.<sup>46</sup>

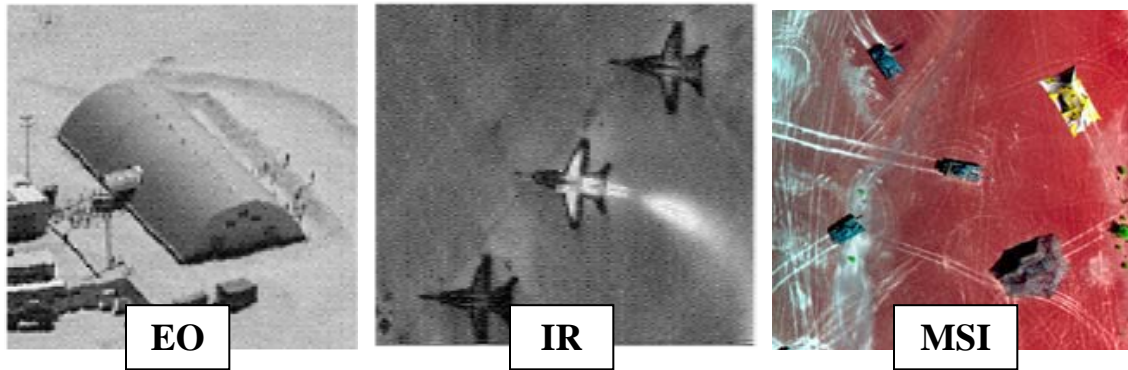


Figure 3. EO/IR/MSI Imagery<sup>47</sup>

EO imagery is highly sought after, but not to the same degree as FMV, making it possibly the most available for SSTR operations. Some EO carrying platforms, like the Global Hawk RPA, can stay over the area of responsibility (AOR) for over twenty hours, increasing the likelihood of available time to take lower priority imagery. MSI sensors are currently limited to roughly six hours over the AOR and they required more effort to process the images than literal EO imagery that can be forwarded almost immediately. Another limitation is the classification levels, which are produced at higher levels than unclassified and would required coordination to be downgraded.

### ***Intangible Benefits***

Apart from the direct effects that airborne capabilities can provide, there are intangibles that can also add benefit. For environments where there is mistrust of foreigners or the military, an aircraft beyond visual range may be the best way to gather intelligence or provide a degree of protection without endangering the recipient. The *Guiding Principles for Stabilization and Reconstruction* alludes to this need with the direction “Given the sensitivities, be creative in acquiring critical information.”<sup>48</sup> Another byproduct of making airborne ISR available is that it demonstrates a level of effort and commitment by the US Government to the government that is being supported by stability operations. Although not applicable at the moment in Afghanistan,



airborne ISR assets can be provided to support a weak or failing government even when there is not enough US domestic will to provide ground forces.

## **V. ROADBLOCKS TO INTEGRATION**

The main obstacles to integrating PRT need with airborne ISR capability fall into three basic categories: Priority, understanding, and process. None of these categories alone prevent integrations, but each severely hampers it and together they are all but preventing it. The best chance for a solution will only come with a firm understanding of these roadblocks.

The largest roadblock to a combined effort may be the DoD's unwillingness to quantifiably commit to some level of priority for stability operations. As mentioned earlier, the DoD no longer gives stability operations comparable priority to combat operations. The DoD has pushed this responsibility down to the Combatant Commander, who in-turn may delegate it to a Joint Forces Commander (JFC). This in itself does not preclude SSTR operations receiving appropriate priority, but it does distance the decision making process from those under the Secretary of State who may have the greatest interest, the greatest understanding, and who NSPD 44 designates as leads for integrated USG efforts. It runs the risk of minimizing the whole of government effort laid out in the 2008 Principles of the USG Planning Framework for Reconstruction, Stabilization and Conflict Transformation:

The success of the U.S. Government (USG) in complex reconstruction and stabilization (R&S) environments will require an integrated, interagency approach that allows both civilians and the military to plan for and respond quickly to rapidly evolving conditions on the ground. To address this challenge, National Security Presidential Directive 44 designated the Secretary of State to coordinate and lead integrated USG efforts to prepare for, plan, conduct, and assess R&S activities in coordination with international, other governmental and nongovernmental partners.<sup>49</sup>



The risk with delegating the priority and not having adequate SSTR representation (in either knowledge or influence) is that the commander's critical information requirement (CCIR) list may not adequately articulate SSTR requirements. Without clear guidance from the commander, the S-2 or G-2 working with the PRT will be at a disadvantage in writing relevant priority intelligence requirements (PIR) for stability operations. CW4 James Braderman provided anecdotal evidence of this:

One great example was a series of reports on the challenges to the judicial system in Northern Afghanistan and the prison network that my people did. I could not publish the reporting because there were no requirements to match Reconstruction and Development of the country's judicial and prison system. The UN really wanted them, but I could not release them due to classification concerns, so they never reached any databases.<sup>50</sup>

While this does not involve airborne imagery requests, it still highlights the potential effects that neglecting the appropriate priority of an operation or range of operations has on overall mission accomplishment.

No matter how well written an S-2 generated PIR may be, it still may get trumped from military leadership for traditional kinetic ISR requests. In Afghanistan the ground commanders are the supported command, so they are able to set the priorities. The ISAF joint community (IJC) takes these priorities and formulates a weight of effort for ISR support. As pointed out by the chief of intel training and tactics for the 9OSS/IN, Captain Patrick Wolverton, "for the most part...the higher priority ground operations in Afghanistan get the ISR support first."<sup>51</sup> With AFDD 2-9 stating "The process of planning ISR operations begins once requirements have been established, validated, and prioritized," a lack of priority can be a death sentence to any planning of ISR operations to support stability operations.<sup>52</sup> This leads not only to PRTs not getting their requests, but it also makes airborne ISR access too undependable to warrant the effort behind creating the PIR and making the request. Major General Michael Flynn notes that while PRTs

and other grass-roots units are asked to provide ground level intelligence, they are limited on what they are given. He wrote “It is little wonder, then, given the flow and content of today’s intelligence, that they are seriously frustrated with higher commands. For them, the relationship feels like all ‘give’ with little or nothing in return.”<sup>53</sup>

The DoD is not the only entity that is perpetuating the gap between ISR capability and stability operations needs. One just has to revisit the aforementioned Guiding Principles for Stabilization and Reconstruction quote; “intelligence is not a formal or acknowledged part of S&R missions. Doctrinal guidance and cooperation on this function is sorely needed to ensure that critical information is collected and appropriately shared.”<sup>54</sup> This was written in 2009, but there has been very little published since then to drive the creation of doctrine or the increase in cooperation. Indicative to this disconnect, as of the writing of this paper, the S/CRS website still cited the 2005 DoDD and paraphrased comparability of stability operations to combat operations even though this ceased to be the case in 2009.<sup>55</sup> There seems to be few if any coordinated efforts by the Department of State or other stability operations entities to gain the priority necessary for any real intelligence cooperation, let alone for airborne ISR.

Another challenge in the effort to supply timely airborne ISR to those groups engaged in stability operations is the availability and compatibility of networks to distribute the information.

DoDI 3000.05 addressed the problem in 2009 with:

In coordination with the USD(P) and the Assistant Secretary of Defense for Networks and Information Integration/DoD Chief Information Officer (ASD(NII)/DoD CIO), develop policies and systems for sharing classified and unclassified information during stability operations among the DoD Components, relevant U.S. Government agencies, foreign governments and security forces, international organizations, nongovernmental organizations, and members of the private sector, while adequately protecting classified information and intelligence sources and methods.<sup>56</sup>

The reality in Afghanistan makes full compliance with this difficult due to the remoteness of some PRTs and their lack of connectivity. Lt Col Shane Duguay, CENTCOM NGA Operations Officer, used the example of “PRT Pek (Baglan) which maintains one ISAF SECRET system and has to get their data from a drive provided by NGA analysts at Mazar e Sharif.”<sup>57</sup> Contact with non-military and foreign military can still present a challenge as well, like the British led Helmand PRT that didn’t have access to SIPR, only CENTRIX when contacted for this paper.

## **VI. RECOMMENDATIONS**

There is no single reason for the disconnect between airborne ISR capabilities and their potential use by stability operations groups like PRTs in Afghanistan. Consequently, there is no one answer that could fix the whole problem, nor is the sequence of required fixes likely to be quick. There are steps that can be taken by both sides to not only bridge the gap in the short term, but also set the conditions for a permanent fix for this and future weak and failing state scenarios.

The first step is creating awareness among PRT members and SSTR planners of what airborne ISR effects they could have available to them and how these effects could help them accomplish their mission. The current lack of airborne ISR understanding could be remedied using a top-off course for PRT members similar to those given to Army members preparing to deploy. The top-off mission statement reads “to effectively integrate ISR capabilities with other warfighting functions to support operations efficiently within the ISR synchronization process, and be adept with processing, exploitation, dissemination and assessment methods/tools during full spectrum operations.”<sup>58</sup> Replace the term warfighting with SSTR and this could be an excellent step towards educating potential users of airborne ISR. Unfortunately this course has not been utilized to date by anyone outside the DoD, even though it is open to DoS and other

non-DoD PRT members. Whether that is due to a lack of advertising outside DoD, or whether it is due to disinterest from DoS, fixing this gap could begin the broadening of PRT intelligence options.

Once there is a greater awareness of the utility airborne ISR could bring to PRT operations, the next hurdle will be the lack of priority, and therefore the lack of access to required imagery. Until PRT ISR imagery requests are given comparable priorities, the best option may lie in adhoc non-interference basis (NIB) requests or mission type orders (MTO) request. Both of these would involve a direct relationship with a distributed combined ground station (DCGS) that runs everyday ISR missions. The benefit of these would be an increase in opportunities to receive imagery utilizing any spare sensor time available. A downside is that the imagery may not be timely, relying on other regional requirements with adequate priority that will result in a collection asset being within collection range of the NIB or MTO. Another downside is the platform route would not be maximized for that image. A flight plan maximized for a PRT image may put the target much closer than an image taken from a greater distance because of other priorities, as demonstrated by figure 1.

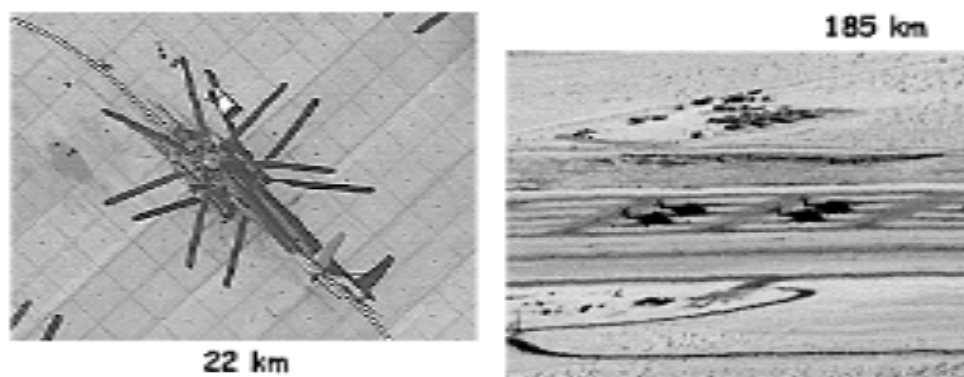


Figure 4. Effect of Greater Slant Range<sup>59</sup>

Another way to enhance opportunities to receive requested imagery even in an environment of low PRT intelligence priority may be to request raw, un-analyzed data.

Air Force Doctrine Document 2-9 speaks to conditions where raw data is warranted:

Additionally, some information is suitable in its raw form to meet user requirements. For example, joint terminal attack controllers (JTACs) can receive a direct feed via ROVER from a Predator or other full-motion video collection source to provide an invaluable “over the next hill” look to support close air support operations. Raw information should be made available to users with the capability to receive it, the knowledge to understand the information they are receiving, and the authority to take action on it.<sup>60</sup>

A PRT should have the tools to receive the images, especially unclassified, and they will definitely have the knowledge of what they are requesting an image of, and since they work solely in non-kinetic actions, there is no issue in not having the authority. The upside is that this minimizes or eliminates any time required by already limited intelligence analysts, making the likelihood and the timeliness of a PRT receiving imagery increase greatly. It also fits into Army LTC Downey’s belief that “In a bottom fed intelligence fight the higher the echelon you try and do intelligence analysis at the less relevant you are.”<sup>61</sup> The downside is the aircraft may not be planned to fly the optimal path to capture an image that had higher priority. The other downside is the image, while most likely literal, may not be as evident to an untrained eye as it would to an intelligence analyst.

As long as leaders at the highest levels of the DoD relegate the priority decision process for stability operations to lower and lower echelons, the need to ensure that the Joint Forces Commander in charge of creating the CCIRs understands the critical importance of PRT intelligence is essential. This adheres to Major General Flynn’s conclusions that “there must be a concurrent effort under the ISAF commander’s strategy to acquire and provide knowledge about the population, the economy, the government, and other aspects of the dynamic environment we are trying to shape, secure, and successfully leave behind.”<sup>62</sup> Without this kind of support for intelligence requests other than for kinetic operations, a large aspect of the coalition plan to achieve victory is left without all the tools available to solve the complex problems of

Afghanistan.

The ultimate solution would be to stop the seeming trend of stripping away priority for stability operations by the Office of the Secretary of Defense (OSD). While it still lists stability operations as a core function, the removal of the phrase “comparable to combat operations” was an overt sign that it wanted to limit its commitment to this role. If OSD is unwilling to sign up to that level of commitment, then it should at least commit to ensuring that a whole of government approach is taken to ensure stability operations are given the necessary tools to succeed. Army Field Manual 3-07 lists the requirement for all government stability operations actors to be “represented, integrated, and actively involved in the process, share an understanding of the situation and problem to be resolved, strive for unity of effort toward achieving a common goal, integrate and synchronize capabilities and activities, and collectively determine the resources, capabilities, and activities necessary to achieve their goal.”<sup>63</sup> By either ensuring priority or ensuring process, OSD leadership can give provisional reconstruction teams the widest set of ISR tools from which they can ensure stability operations are run as effectively, efficiently, and safely as the situation allows.

## **VII. SUMMARY**

Imagine, if you will, a beautiful day in Afghanistan. Provisional reconstruction team (PRT) X prepares to go out on a multi-purpose mission that will help the increasing stabilization of their assigned region. They leave the compound with the best armored vehicles and the greatest show of force they can muster. They are planning to cover a wide area in the hopes of determining if there is an illicit crop problem, then proceed to an austere construction site to verify work is being performed by the contractor they already paid. Along the way they plan to

watch for patterns of life to help them determine future construction projects. The overall mission of this day hasn't changed from the one that opened this paper, but without airborne ISR, the risk was significantly raised while the efficiency and effectiveness were significantly lowered. Unfortunately, this scenario is much closer to the current situation than the opener even though all the airborne capabilities for the first scenario exist in Afghanistan.

A disconnect exists between airborne ISR capabilities and their use for stability operations in Afghanistan. This may be due to a lack of priority and sponsorship for the importance of stability operations, or it may be the lack of understanding by those in stability operations who stand to benefit from the capabilities. Whether it is either or both, the fact remains that there is a need and there are airborne capabilities that could fill those needs. While band aides fixes exist to help temporarily bridge the disconnect, the willingness to attempt these unreliable methods runs the risk of putting both the stability operators and the military ISR managers back to square one. Without a concerted effort by both sides to fix the major gaps at the highest levels, airborne ISR capabilities are going to remain off the table of solutions for stability operations in Afghanistan. Both sides need to reach outside their traditional formulas for airborne ISR intelligence if they intend to bring the full range and weight of effort to the stability of Afghanistan and any future stability operation.



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